

## **AMENDMENTS TO THE SPECIFICATION**

Please replace paragraph number [0016] with the following rewritten paragraph:

[0016] Thus, the first subject matter of the present invention is a metallic glass laminate, wherein a thermal sprayed coating layer of a metallic glass layer of an amorphous phase is formed on the substrate surface and no continuous pore (pinhole) that passes through the thermal sprayed coating layer of the metallic glass layer is present, wherein the supercooled liquid temperature  $\Delta T_x$  of the metallic glass is equal to or more than 30 °C, and wherein the porosity of the thermal sprayed coating layer of the metallic glass is equal to or less than 2%, and a metallic glass bulk that can be obtained by removing the substrate from the above-mentioned metallic glass laminate.

The above-mentioned metallic glass layer can be formed by the solidification and lamination of at least part of the amorphous metallic glass powder in a ~~molten state~~ or supercooled liquid state on the substrate surface. As a lamination method, for example, thermal spraying can be suitably used.

Please replace paragraph number [0026] with the following rewritten paragraph:

[0026] Fig. 11 is a cross-sectional picture of the metallic glass laminate (Test Example 1) in one example of the present invention.

Fig. 12 is an X-ray diffraction pattern of the laminate produced from amorphous metallic glass particles with  $\Delta T_x=0$  (Test Example 3-3).

Fig. 13 is an electron micrograph of the surface of SUS304 L substrate in the thermal spray particle trapping test under the conditions of fuel 6.0 GPH and oxygen 2000 SCFH (Test 4-1).

Fig. 14 is an electron micrograph of the surface of SUS304 L substrate in the thermal spray particle trapping test under the conditions of fuel 5.5 GPH and oxygen 2000 SCFH (Test 4-2).

Fig. 15 is an electron micrograph of the surface of SUS304 L substrate in the thermal spray particle trapping test under the conditions of fuel 4.0 GPH and oxygen 1500 SCFH (Test 4-3).

Please replace paragraph number [0045] with the following rewritten paragraph:

[0045] The supercooled liquid state is generally a state in which a melt does not solidify even below the melting point. In the normal thermal spraying, thermal spray particles are ejected from the nozzle of a thermal spray gun and heated once above the melting point to a molten state. ~~In the present invention, metallic glass thermal spray particles hit the substrate during the flight, and they are deformed, deposited, and cooled. Thus, the metallic glass solidifies through the supercooled liquid state, in which a molten state is maintained even in the temperature range below the melting point. During the process, the metallic glass goes through the above-mentioned crystallization temperature region and through the crystallization starting temperature. The wider the supercooled liquid temperature range  $\Delta T_x$ , the more stable the supercooled liquid state; thus, it is difficult for crystallization to take place.~~ If the metallic glass is heated to the temperature range that is below the crystallization starting temperature, it safely solidifies to an amorphous state without a large influence of the cooling rate.

As seen in the above-described DSC measurement, a metallic glass of an amorphous phase can have a supercooled liquid state even during heating.

Please replace paragraph number [0049] with the following rewritten paragraph:

[0049] Thus, in the present invention, it is preferable that at least part of the metallic glass particle is allowed to hit the substrate surface in the supercooled liquid state. If the surface of metallic glass particle is in a molten state, there are fewer pores in the metallic glass layer. In the case of a rapid heating process like thermal spraying, there are cases that only the surface of thermal spray particles is in a molten state ~~or in the supercooled liquid state.~~

Thus, in the present invention, a metallic glass layer can be formed on the substrate surface by the solidification and lamination of at least part of metallic glass particles in a ~~molten state or~~ supercooled liquid state and laminated on the substrate surface.

Please replace paragraph number [0113] with the following rewritten paragraph:

[0113] The thermal sprayed coating of metallic glass 214 can be laminated by the thermal spraying of metallic glass on the surface of the porous base material 212. Specifically, in the production of the above-mentioned metallic glass laminate, a porous base material is used as a substrate.

A thermal sprayed coating of metal usually has numerous pores. Therefore, when metal is sprayed on a porous substrate by thermal spraying, it is difficult to completely close the pores of the substrate even when a thick thermal sprayed coating is formed.

In the present invention, it is possible to easily form a strong metallic glass coating of a dense and homogeneous amorphous phase on the surface of the porous base material in a short time by allowing at least part of the metallic glass particle to hit the surface of the porous base material in a ~~molten state or~~ supercooled liquid state.

Please replace paragraph number [0135] with the following rewritten paragraph:

[0135] It has been known that the metallic glass is generally more corrosion resistant and has higher mechanical strength than the normal amorphous alloy. However, it has been difficult to form a thick metallic glass film of a homogeneous amorphous phase.

In the present invention, a metallic glass coating of a homogeneous amorphous phase can be obtained by thermal spraying, in which at least part of the metallic

glass particle is solidified and laminated in a ~~molten state or~~ supercooled state on the substrate surface.

Please replace paragraph number [0144] with the following rewritten paragraph:

[0144] Test Example 3 Effect of  $\Delta T_x$

Laminates were obtained by thermal spraying of amorphous metallic glass powders with different supercooled liquid temperature ranges  $\Delta T_x$  in the same way as Test Example 1 (thermal sprayed coating: about 200  $\mu\text{m}$ ). The thermal sprayed coatings were evaluated for the formation of an amorphous phase based on the criteria shown below.

(Formation of an amorphous phase)

○: A halo pattern was observed by X-ray diffraction (single amorphous phase)

□: Both halo pattern and crystalline peak were observed by X-ray diffraction (partially crystalline phase)

: A halo pattern was not observed by X-ray diffraction (crystalline phase)

Please replace paragraph number [0145] with the following rewritten paragraph:

[0145]

Table 3

Test	<u>Metal</u> Metallic glass	$\Delta T_x$	Formation of an amorphous
3-1	$\text{Fe}_{43}\text{Cr}_{16}\text{Mo}_{16}\text{C}_{15}\text{B}_{10}$	about 63 °C	○
3-2	$\text{Fe}_{52}\text{Co}_{20}\text{B}_{20}\text{Si}_4\text{Nb}_4$	about 31 °C	○
3-3	$\text{Fe}_{78}\text{Si}_{10}\text{B}_{12}$	about 0 °C	